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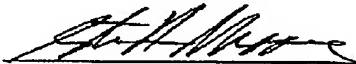
MAR 05 2007

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PTO/SB/SS (07-05)

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<b>PRE-APPEAL BRIEF REQUEST FOR REVIEW</b>		Docket Number (Optional) 38203-6082B	
<b>CERTIFICATE OF FACSIMILE TRANSMISSION</b> UNDER 37 CFR 1.6(d)  I hereby certify that this paper and the attached papers are being transmitted by facsimile to the Patent and Trademark Office, 571-273-8300, on this date:  <u>3-5-07</u> <u>Steven A. Moore</u> Date                      Signature		Application Number 10/775,718	Filed 02/09/2004
		First Named Inventor Smith et al	
		Art Unit 2876	Examiner K. Koyama
Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.  This request is being filed with a notice of appeal.  The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided. X			
I am the <input type="checkbox"/> applicant/inventor. <input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96) <input checked="" type="checkbox"/> attorney or agent of record. Registration number <u>55,462</u>		 Signature <u>Steven A. Moore</u> Typed or printed name <u>858-450-8400</u> Telephone number <u>3-5-07</u> Date	
<input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34 _____			
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.			
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This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AP, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Smith et al.

Serial No.: 10/775,718

Filed: February 09, 2004

Cust. No.: 33123

For: *METHOD AND APPARATUS FOR SELF-  
REFERENCED WAFER STAGE  
POSITIONAL ERROR MAPPING*

Examiner: Koyama, Kumiko

Art Unit: 2876

CERTIFICATE OF FACSIMILE TRANSMISSION  
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P.O. Box 1450  
Alexandria, VA 22313-1450**NOTICE OF APPEAL**  
**&**  
**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Dear Sir:

In response to the Final Office Action dated December 05, 2006, a Notice of Appeal, a Pre-Appeal Brief Request for Review, and accompanying statements are submitted for consideration. These documents are submitted within three months of the mailing of the Final Office Action.

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REMARKS

These remarks are submitted for review and consideration during the Pre-Appeal Brief Review. Claims 44-47 and 50-54 are pending and finally rejected, and can be found in Applicant's September 21, 2006 Response. No other appeals or interferences exist which relate to the present application or appeal. No amendments are outstanding. This request for review is filed contemporaneously with a response to final office action, the contents of which are hereby incorporated by reference in their entirety.

Applicant submits that the Examiner's response to argument displays a fundamental misunderstanding of the present invention. All claims in the present application are directed toward an invention that includes the use of complementary attributes. In the Final Office the Examiner's Response to Arguments the Examiner states:

"However the Examiner believes the alignment attributes pointed out in the rejection does read on the claimed recitation. The Applicant does not specifically define the term "complementary" and according to the dictionary definition of "complementary" the term conveys a meaning "expressing or containing a complement" or "given free as a courtesy or favor." Since the provided claims do not specifically describe the positional relativity as to what the term "complementary conveys in the attributes, the Examiner believes the term "complementary can be broadly interpreted as an attribute being either positional opposite, next to or close to another attribute."

The Examiner is respectfully invited to read the current specification, paying special attention to FIGs. 1, 12 and 21 and page 22 where it states the following.

"Alignment attributes 1 and 2 form a complementary pair, when combined by projecting and overlaying them one upon another they form a completed, readable alignment attribute, examples of which are shown in Figure 1 and in more detail in Figure 12A. Alignment attributes or features 1 are offset in distinct orthogonal directions from feature 2 by a distance  $M \cdot dp$ ." (Page 22, lines 9:14)

Applicant believes this statement demonstrates a misunderstanding that may be part of the basis for the Examiner's rejection to the claims of the present invention. Accordingly, the Examiner is invited to read the cited portion of the specification.

Further, the Examiner's discussion related to Ausschnitt's attributes 132, 134, 140 and 142 are further evidence of this fundamental misunderstanding. The Examiner is respectfully invited to contrast FIGs 1, 21 and 41 of the present application with FIG 18 of Ausschnitt. Claims in the present invention are directed toward the use of sets of complementary attributes. The Examiner's misinterpretation of claim terms has led to maintaining an improper rejection.

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Additionally, the Examiner's assertion in his remarks "Although the combination may disclose each and every error component, the Applicant does not specifically disclose that the overlay map can be produced using any of the individual components." Once again, the Examiner is invited to read the specification paying special attention to the discussion beginning on page 26 line 15 through page 29 line 2. Further, the Examiner is invited to read page 32.

Issue Whether claims 44, 50, and 51 are unpatentable under U.S.C. § 103(a) as being obvious over U.S. Patent 5,805,290 ("Ausschnitt") in view of U.S. Patent Nr. 6,269,322 ("Templeton").

Argument: In order to establish a prima facie case of obviousness, three basic criteria must be met:

"First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined), must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure." M.P.E.P. § 2142.

1. The Proposed Combination Fails to Teach Basic Elements.

In paragraph 1 of the Final Office Action the Examiner states:

"Ausschnitt '290 fails to teach a stage that is shifted in a desired direction relative to the reticle. Ausschnitt '290 also fails to teach the offset measurements of the exposed alignment attributes are used to determine a self referenced wafer stage overlay error map. Templeton discloses a wafer stage 160 that is movable in the x-direction and y-direction."

The proposed combination fails to teach all of the elements recited in independent claims 44, 50, and 51. Specifically, the combination fails to teach multiple sets of complementary alignment attributes. Claim 44 recites "a first set of alignment attributes disposed along a first column; a second set ... disposed along a second column... a third set... and a fourth set." Claim 50 recites a "means for producing a first set of alignment attributes ... means for producing a second set ... means for producing a third set ... and means for producing a fourth set... ." Amended claim 51 includes "at least two sets of alignment attributes".

In contrast, Ausschnitt's attributes cited by the Examiner do not constitute more than one set of attributes within the context of the present invention. The present invention precisely defines a set of attributes when it states "[a]lignment attributes 1 and 2 form a complimentary pair, when combined by projecting and overlaying them one upon another they form a completed, readable alignment attribute." (page 22, lines 9-12). This is additionally illustrated in FIGs. 1 and 12A. The attributes taught in Ausschnitt would constitute, in combination, one set. This is not a trivial distinction. The present invention employs the use of more than one set of attributes laid out across the reticle. (see figures 21, 40, 41, and 45)

In the context of Applicant's invention and claims, and for the purpose of establishing a clear and non-ambiguous prosecution history, the claim elements contained in dependent claims 44, 50, and 51 referring to "a set of attributes". This aspect of the invention, as defined by the Applicant, means "a complimentary pair, when combined by projecting and overlaying them one upon another they form a completed, readable alignment attribute". (Page 22, lines 9-12)

Stated differently to clearly point out the distinction, attributes taught in Ausschnitt, the 1<sup>st</sup> and 3<sup>rd</sup> (140 and 142 in FIG 18) are not complimentary to the 2<sup>nd</sup> and 4<sup>th</sup> (132 and 134) as defined by the Examiner. Taken together attributes 132, 134, 140, and 142 make up only the outer portion of a

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frame-in-frame completed alignment attribute (FIG 1 of the present invention) and by themselves cannot be used to measure X-Y shifts on an overlay metrology tool.

Additionally, this combination fails to teach, suggest or imply sets of complementary alignment attributes that interlock "after the reticle has been shifted a desired direction" as recited in independent claim 44 and 50, nor does this combination teach, suggest or imply the limitation "creating an interlocking row or column of completed attributes, such that positional offsets of the alignment attributes in the interlocking row or column of completed attributes" as recited in independent claim 51.

Further, the proposed combination fails to teach a combination useful "to determine a self referenced wafer stage overlay error map" As is known in the art, product wafer overlay errors are for a combination of reticle, stage, lens, and alignment mark detection errors. The proposed combination of the art determines this combined error but not any of the individual components. Using the more elaborate structure of Smith, we can isolate the stage component only as discussed in depth on pages 26:32. That we can isolate stage error is apparent only after this somewhat lengthy discussion and is by no means obvious nor in any way, suggested, taught or implied by the proposed combination.

## 2. The Proposed Combination Has no Reasonable Expectation of Success.

As stated above, the attributes taught in Ausschnitt are not complimentary, and by themselves cannot be used to measure X-Y shifts on an overlay metrology tool. Additionally, the teachings in Ausschnitt are principally aimed at determining CD bias or focus. To the extent that CD bias and focus are contributing to a wafer stage overlay error map, they will introduce errors in the map and be detrimental to the accurate determination of the mechanically induced stage error. The Ausschnitt reference was specifically designed to be sensitive to CD bias and would induce errors in their application to the present invention.

Further, as discussed above, the proposed combination would not have a reasonable expectation of successfully determining "a self referenced wafer stage overlay error map" As is known in the art, product wafer overlay errors are for a combination of reticle, stage, lens, and alignment mark detection errors. The proposed combination of the art determines this combined error but not any of the individual components. Using the more elaborate structure of Smith, we can isolate the stage component only as discussed in depth on pages 26:32. That fact that the present invention can insulate stage error is apparent only after this somewhat lengthy discussion and is by no means obvious nor in any way, suggested, taught or implied by the proposed combination of art.

Hence the combination of Ausschnitt and Templeton fails to teach an important element of independent claims 44, 50, and 51, the proposed combination would have no reasonable expectation of success in solving the problems solved by the present invention, and the obviousness rejection is traversed. The Applicant therefore respectfully requests favorable reconsideration of this rejection.

Issue: Whether claims 45, 47, 52, and 54 are unpatentable under U.S.C. § 103(a) as being obvious over Ausschnitt as modified by Templeton in view of U.S. Patent Nr. 5,700,602 ("Dao").

Argument: Applicant notes that the proposed combination of Ausschnitt and Templeton (1) fails to teach essential elements and (2) would have no reasonable expectation of success as described above. The addition of the Dao reference does not correct these deficiencies. The Examiner relies on Dao to provide "an attenuated phase shifting reticle that uses an embedded film, which is engineered to have a reduced transmission" (Final Office Action paragraph 3). Dao does not teach suggest or imply sets of complimentary attributes. For all of the above reasons the addition of Dao to the proposed combination does not correct the deficiencies as they relate to independent claims 44 and 51. Since dependent claims 45 and 47 further limit the scope of independent claim 44 and dependent claims 52 and 54 further limit the scope of independent claim 51, it is respectfully

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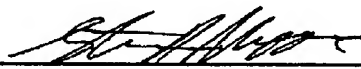
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submitted that these dependent claims are distinct from the proposed combination. The Applicant therefore respectfully requests favorable reconsideration of this rejection.

**Issue:** Whether claims 46 and 53 are unpatentable under U.S.C. § 103(a) as being obvious over Ausschnitt as modified by Templeton and Dao in further view of U.S. Patent 5,262,257 ("Fukuda").

**Argument:** Applicant notes that the proposed combination of Ausschnitt, Templeton Dao (1) fails to teach essential elements and (2) would have no reasonable expectation of success as described above. The addition of the Fukuda reference does not correct these deficiencies. The Examiner relies on Fukuda to provide "an alignment pattern of a mask formed by a dielectric material film 36 (col. 3, lines 32-34)" (Final Office Action paragraph 4). Fukuda does not teach suggest or imply sets of complimentary attributes. For all of the above reasons the addition of Fukuda to the proposed combination does not correct the deficiencies as they relate to independent claims 44 and 51. Since dependent claim 46 further limits the scope of independent claim 44 and dependent claim 53 further limits the scope of independent claim 51, it is respectfully submitted that these dependent claims are distinct from the proposed combination. The Applicant therefore respectfully requests favorable reconsideration of this rejection.

Respectfully submitted,  
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